Howe (S.)

MILK FEVER.

A TREATISE TO SHOW THE RELATION WHICH EXISTS BETWEEN THE RISE IN TEMPERATURE ON THE THIRD TO FIFTH DAY, AND THE BEGINNING OF THE MILK SECRETION.

GRADUATION THESIS PRESENTED TO THE HARVARD MEDICAL SCHOOL,

BY

SAMUEL HOWE, M.D., CAMBRIDGE, MASS.

Reprinted from The American Journal of Obstetrics and Diseases of Women and Children, February, 1876.

SURGEON GEN'L'S OFFICE LIBRARY

NEW YORK:
WILLIAM WOOD & CO., 27 GREAT JONES STREET.
1876.

SURGEON GEN'L'S OFFICE
LIBRARY

MILK FEVER.

A TREATISE TO SHOW THE RELATION WHICH EXISTS BETWEEN THE RISE IN TEMPERATURE ON THE THIRD TO FIFTH DAY, AND THE BEGINNING OF THE MILK SECRETION.

Graduation Thesis presented to the Harvard Medical School,

BY

SAMUEL HOWE, M.D., Cambridge, Mass.

(With 8 Curve Tables.)

THE affection commonly known as milk fever has for a long time been treated of in the works on midwifery, but in scarcely any has the true nature of the disease been thoroughly discussed, or has its real bearing on the secretion of milk been fully settled, and even now, great diversity of opinion as regards it exists.

Before giving the results of my own investigations (which I was able to make through the kindness of the visiting physicians and house officers of the Boston Lying-In Hospital, by allowing the records of their cases to be overlooked and studied) I will bring forward some of the principal views of the writers on this branch of medicine, taking first the English and American authors.

In former times, the term milk fever was used to designate

any fever, puerperal being excluded, which occurred during the first week of the lying-in state. The ephemeral, weed and milk fevers were considered by some authors to be one and the same.

Tyler Smith considered the so-called milk fever as not connected with the breasts alone, but says that the state of the breasts incident to the establishment of the milk, and the condition of the internal surface of the uterus, often produce considerable constitutional disturbance and fever known as milk fever, ephemeral or weed. Hodge and Rigby are of very much the same opinion concerning this affection. Cazeaux says that it is a rare thing to find any fever with the coming of the milk, but sometimes that state of things does exist. He also adds that it is wrong to suppose that this fever necessarily shows some hidden inflammation. Ramsbotham, in speaking of milk fever, which he separates from weed as an entirely different affection, says that it is due to the congestion of the breasts, and that it is much less common than formerly, on account of the more efficient method of treating them. Churchill also separates the two.

Bedford, in his Midwifery, in speaking of the condition of the breasts at the beginning of lactation, says that the fever which often accompanies this change is called milk fever, and is due to the violent congestion of the mammæ.

Meigs, in his account of inflammation of the breasts, speaks of milk fever in connection with this.

Byford considers that milk fever and congestion of the breasts are synonymous terms. All these authors merely mention the name milk fever, without giving any facts which would go to show that there was any real fever in connection with the arriving of the milk. All speak of the affection in a very loose and confused way, no opinion being given to show what the fever is, or whether the feverish action is due to milk, or to some other cause.

In looking up the subject in the foreign works on obstetrics, I found much more had been written, but that there was great diversity of opinion as regards its true nature, and that even now, the matter is far from settled.

The most exhaustive treatise on the subject I could find, was written by Dr. Justus Schramm, in *Scanzoni's Beiträge*,

Würzburg, 1868, in which the subject is very thoroughly discussed, and the opinions of the most distinguished authors quoted. I have taken from this work some of the opinions of various writers which he quotes. They are as follows:

Jörg, in 1809, gives the following idea as to the real nature of the so-called milk fever. He considers it chiefly a true wound fever, and divides the causes into four classes:

1st. The wounding of the genitals, for the genitals are always more or less torn and bruised during child-birth, and that these of themselves give rise to a certain amount of fever, which he considers a true wound fever.

2d. That indiscretions in diet will give rise to a feverish action.

3d. That fever may be excited by taking cold.

4th. He considers that the congestion of the breasts, which frequently occurs at the coming of the milk, and which is much increased by the milk being secreted too fast, so that it is dammed up and causes the gland-tissue and vessels to stretch, will give rise to fever, which fever he considers a true wound fever, and that sore nipples also will give rise to the same results.

Carus, in 1820, in speaking of the so-called milk fever, considers it as a many-sided affection which is excited by many causes; namely, after-pains, wounds of the mucous membrane about the genitals, errors in diet, sore nipples, restlessness, etc.

Froriep, in 1832, states that milk fever occurs only in those women who put the child to their breast late; that is, after the milk has come, or in those who do not nurse their child at all.

Neumann, in 1839, does not think that the secretion of milk gives rise to any fever, but that this so-called milk fever is due to the stretching and irritation of the skin, brought about by the congestion and enlargement of the mammary glands, which the over-abundant secretion of milk causes.

Kiwisch, in 1841, speaking of the fever which often occurs about three to five days after confinement, says the bruising and injury of the genital apparatus gives rise to fever which is known as milk fever; but he adds that he thinks it has not direct connection with the secretion of milk, and that fever may also be excited by certain atmospheric influences,

for at certain periods these never constant fevers seldom or never appear.

Berndt, in 1846, considers that the milk fever is not the result of topical injury, but is due to the change in the whole system connected with the milk secretion.

Levret thinks that the milk fever is a physiological condition, the consequence of a change in the whole system brought on by the beginning of the milk secretion.

Winckel gives very much the same opinion as Kiwisch, except as regards the atmospheric influences; these he does not mention.

Swieten and Eisenmann consider the milk fever a true wound fever, caused by the separation of the placenta from the uterus.

Locock, in 1843, attributes the fever to too nourishing diet, too warm an atmosphere in the lying-in room, to too great exertion and fatigue in nursing, and also to violent mental excitement. This view is also held by Weissner in 1846.

Of French authors, Jacquemier, in 1846, says: "Les phénomènes dependent de la stagnation de la retention du lait dans les vaisseaux galactophores avec ou sans irritation inflammatoire de ceux-ci."

Velpeau, in 1854, gives the same opinion.

Scanzoni, in 1855, considers the fever due to an insufficient emptying of the milk-vessels, and thinks the term milk fever not a bad one.

Hope, in 1862, says that the fever known as milk fever is not connected alone with the secretion of the milk, but that it is much more likely to be due to a sudden rush of blood to the surface.

Grenser, in 1863, in speaking of the breasts, says that especially when the child is put to the breast late, or there are errors in diet, and when the gland is small and ill-prepared to carry on the work, the beginning of the secretion of milk is attended with fever.

Winckel, who first made investigations with the thermometer on the physiology and pathology of childbed, and showed the importance of its use, both as regards diagnosis and prognosis, in his work, "Pathologie und Therapie des Wochenbetts," and also in a former article on the very subject, considers the term milk

fever unscientific and worthless, inasmuch as it is used for a fever which is produced by many different causes; and he adds that the secretion of milk is not in any way connected with the rise in temperature, but that it is due to the bruising and tearing of the genitals, etc., but in this article he says, that the curve makes it evident that the increase and diminution in the amount of the milk secretion is followed by a corresponding rise and fall of the mercury.

Schramm, from whose article the opinions of many of these authors are taken, and whose investigations will be given before those which I have made, considers that the pure milk fever, which is due to a congestion of the glands of the breast, is attendant upon the coming of the milk, and is rather a rare affection.

Schroeder, in his manual of midwifery, and also in an article on milk fever, in his work, "Schwangerschaft, Geburt und Wochenbett," written in 1867, considers the term milk fever a very good one, and much better than mastitis parenchymatosa non-suppurativa, which explains the nature of the affection. He says, that there is always a rise in temperature, connected with the coming of the milk, of a few fractions of a degree C., which is not due to any injury of the genitals, and that occasionally the breasts are very much congested, hard and painful, at the coming of the milk, when the temperature may rise as high as 104° F., 40° C., or even more, and that this rise is due to this congestion; and in speaking of the very case brought forward by Winckel, for he finishes the article with the clinical report of a case which he thinks would be considered a true case of milk fever, but which is explained as a case of wound fever, he thinks it was in reality a good example of this very milk fever; for in this case, while the breasts were congested, hard and painful, the nipples both excoriated, and in one a fissure, the temperature was as high as 104° F., 40° C., and the small ulcer, which Winckel found on the anterior lip of the cervix of the uterus, one of the principal causes of the high temperature, he (Schroeder) considers had very little to do with it, for, according to his experience, these ulcers do not give rise to any marked increase in pulse and temperature.

Winckel, in defending his opinion concerning this very case, says that Schroeder forgot that this woman had been suffering

from endometritis, and that he thought this was also one of the causes of high temperature.

In the *Boston Medical and Surgical Journal*, for February 13, 1873, there is an abstract of an article on the nature of puerperal fever, from the *Archives Générales de Médecine*, by Dr. A. D'Espine. In this the author denies the existence of milk fever as such, but asserts that the fever which occurs is due to the absorption of the lochia by the wounding and laceration of the genital canal, and that small ulcers will be found which are points of absorption.

Schramm, in making his investigations as regards the temperature during the lying-in state, and more especially concerning the rise connected with the secretion of milk, takes the temperature morning and night both in the axilla and vagina. The results obtained by him are as follows: He finds that the temperature is increased with the coming of the milk, excluding those cases in which the rise of temperature was due to some other cause. When the breasts are hard and congested, the rise will be as high as 102.7° F., 39.4° C.

The temperature in primiparæ was found to be higher than in multiparæ, and the daily fluctuations greater. These observations are confirmed by those made by Wolf in 1866, except with regard to the daily fluctuations being greater in primiparæ than in multiparæ. He thinks that his results are more likely to be correct, for in the woman who is confined for the first time the organism is more sensitive, and the fluctuations of temperature are therefore more likely to be greater.

It occurred to Schramm, that if the rise in temperature was due to the formation of milk, that in those rare cases where there was no milk at all, there would be no rise on the third day. In his one hundred and eight cases there was one woman who had no milk; in this case there was no rise in temperature. Wolf found this also to be the case.

From so small a number of cases no rule can be, with any accuracy, established, and further investigation is necessary.

As it has been clearly shown by the observations of Wolf and Schramm that with the arrival of the milk there is an increase in temperature, it has also been shown that with a larger secretion the temperature rose higher than when the secretion was small, and that when it was wanting there was no rise.

Schramm thought that if the temperature were taken after the milk was drawn out, it would be found to be lower; for he says that many authors consider the irritation of the milk-vessels the cause of increased temperature. He, therefore, in a few cases, took the temperature before and after nursing, and found that his conjecture was correct.

He mentions a case of Hecker, of a woman who lost her child, and the milk was drawn with a pump; the temperature fell from 39.7° C., 103° F., to 37.8° C., 99.6° F.

He also gives a case of his own, where the temperature fell from 38.4° C., 101.1° F., to 37.1° C., 98.7° F. These were exceptional cases. He found that if there was a large secretion of milk, good nipples, and a strong nursing child, the temperature fell after nursing from .1–.5 of a degree C., .2–.9° F.; but that it was necessary to take into consideration the time of day, as there always is a regular rise towards night.

He also discovered that when the milk was in small amount, and the child greedy, the nursing was followed by a rise instead of a fall. This he explains by the fact that a hungry child, sucking vigorously, will cause a certain amount of nervous irritation. Sore nipples are well known to give rise to a greater temperature, but Schramm thinks that this is over-stated by authors, for he found in no case with simply sore nipples any exhaustive fever.

He then gives three cases of pure milk fever, the temperature rising to about 40.5° C., 104.9° F., the breasts very full and painful, but no other lesion could be found.

He finishes the article with a discussion as to the cause of the rise of temperature with the secretion of the milk, but does not make it as clear as he might, for he distinctly states that he does not think the irritation caused by the stretching of the gland, and due to too great an accumulation of milk, can give rise to the temperature, but says that his views coincide with those of Scanzoni, Velpeau, and others, who are of the opinion that the rise in temperature and pulse are due to a congestion of the gland, caused by a large secretion of milk, and his experiments show that when the milk is drawn off the temperature falls.

He speaks of the relation which exists between mother and child: as long as both act together, the condition of the breasts

is perfect, and the temperature keeps about normal; but if from any cause the milk is secreted too fast, and the breast becomes full and hard, it immediately rises.

Taking these views, I am unable to say whether he thinks the fever is due to too large secretion, or the accumulation of milk in the gland.

I am inclined myself to think it is due to both causes, and that either one will give rise to an increase in temperature and pulse.

The idea that the milk is formed in the blood, and that the retention of it gave rise to fever, has been overthrown by the experiments of Wills in 1850, for he shows that the glands of the breast alone form milk.

If this rise is caused by the wounds and laceration of the genitals, Schramm thinks that it is strange that when the breasts are inflamed and the milk secreted in too great quantities, the temperature should rise, and when the condition is relieved, it should immediately fall.

Schramm concludes by speaking of the so-called febricula theory, which explains this fever as due to certain attacks of a slight contagious fever, although, he says, the febriculæ do occur in lying-in hospitals, for he has noticed when the wards were crowded, the temperature is often higher. He thinks it is false to classify the milk fever with these. He considers under the term febriculæ, indiscretions in diet and restlessness of the child, and leaves out those which occur in connection with wounds of the genitals which are to be considered under the name of wound fever, and also those due to congestion of the breast known as milk fever. He wishes it to be distinctly understood when he speaks of milk fever, that he does not mean every febrile action which occurs during the lying-in state, but considers this affection in its pure form rare, two to four cases in a hundred, but that often we have it in connection with wound fever and febriculæ, etc.

I have given a rough abstract of the three distinguished authors on this subject: Winckel, on the one hand, strongly objected not only to the term, but considered that the condition of the breasts and secretion of the milk have very little to do with any febrile movement; and on the other, Schroeder and Schramm thought the secretion of the milk is almost al-

ways attended with a slight rise in temperature, and occasionally this rise is very considerable.

I will give the conclusions to which I have been able to arrive from studying the record of over one hundred cases. Having given the opinions of the most celebrated authors both of this country and of Europe as regards this so-called milk fever, and having shown how various and different are their views, I wish in the rest of this article to see how far the investigations which I have made correspond to, and in what way they differ from them, and also to prove, if possible, that if such a fever does exist, what is its real origin.

For convenience, these authorities may be divided into two distinct classes: those who consider that the so-called milk fever is connected with some inflammation of the genitals due to laceration or bruises at the time of birth, and those who attribute it to the congestion of the breast, due to the establishment of the secretion of milk. Although most of these authors are not at all clear in their definition of the nature of the disease, I think that in a general way they can be divided into these two classes.

Many other reasons have also been given by some of them, but these will be discussed hereafter. D'Espine and Winckel may be thought as at the head of the first set, and Schroeder and Schramm, the leaders of the other.

The opinions of the English and American writers on this subject may be considered worthless as far as any exact or correct proof goes, for they have in no case followed the matter up thoroughly, and speak only in a general way.

Those investigations only which have been made with the thermometer can be considered as conclusive, since the slight fevers which are common during the lying-in state can only be detected by this means, for not unfrequently the pulse may never rise above 80, while the temperature may be as high as 103° or more. This mode of investigation was first used by Winckel, although Hecker was the first to make use of it in connection with this subject. Thinking that this was the only way to arrive at any thorough conclusion concerning the subject (for I began looking the matter over before I obtained any of the foreign works), it occurred to me that an average of the temperature in a hundred cases would show whether there was any rise with the beginning of the milk secretion. I then

obtained permission to examine the books of the Lying-in Hospital, where the temperature is taken morning and evening, in every case of labor for the first ten days. I took an average of daily fluctuations in one hundred and eight cases, all being excluded which were fatal or were connected with any serious trouble. All reports were of women who were able to leave the hospital in about the allotted time of two weeks. I found that the temperature was the highest on the third and fourth days, and that the milk on an average was secreted on these very days. For instance, the milk, as a rule, comes about the third day, and the breasts were fullest on the fourth. The temperature on the evening of the fourth day, was, I found, 101.16° F., 38.42° C. This was the highest during the whole ten days.

In regard to daily fluctuation, which Schroeder and Schramm showed, I found that at first there was very little; one degree F., but gradually diminished to between $\frac{1}{4}$ and $\frac{1}{2}$ degree. (See Curve I.) I do not wish to show by the table that the milk alone caused a rise of two degrees, for among these cases there were many other causes for this increase, namely, wounds and laceration of the mucous membrane of the genital apparatus, after-pains, sore nipples, indiscretions in diet and mental emotion; but I think that this point is clearly shown—that although there are many causes for this rise, that the additional cause, namely, the coming of the milk, will show itself in a further rise in temperature. It may be argued that an increase of temperature observed on the fourth day in this large number of cases is really due to the laceration of the genitals, and in other causes necessarily incident to labor, rather than to the beginning of the secretion of milk and the change in the condition of the breasts; but I think that the cases I shall cite hereafter, in which these lesions and lacerations were entirely wanting or very slight, will show that in those cases there was a marked increase of temperature, which can hardly be attributed to anything but the changes which were going on in the breasts.

As regards the normal increase of temperature with the arrival of the milk, I am unable to give any conclusion, drawn from an average of sufficient cases to make the point clear, for it is not common to find many cases which are perfectly normal all the way through; and if we follow the opinion of some authors who consider that there is almost no case of labor in

which there was no injury done to the vagina or mouth of the uterus, it seems impossible to say which cases are strictly normal and which abnormal. The tables in the works of Wolf and Schramm make the rise in temperature connected with the secretion of milk a few fractions of a degree C.

I was able to collect, out of the one hundred cases, eighteen in which the coming of the milk was accompanied with a rise on an average of 103° F., 39.4° C. In some of the cases the temperature rose much higher, 105° F., 40.5° C., but these cases were not what might be considered pure, that is, there were often causes which came into play to make this increase, but they were either so slight that they could be neglected, or they came at some other time during the lying-in state, so that they could be easily separated. I selected these cases, because at the time of the high temperature the milk was in considerable amount, and the breasts full, slightly painful, and when this condition of things was relieved, the temperature immediately fell. To illustrate this point, I will give two or three cases which I think will show that, with a large secretion of milk and congested breasts, the temperature will rise, and as the congestion diminishes, it falls.

Emma P., 19; American; primipara; medium size; dark; labor natural; child, boy, 6½ lbs., born at 3 o'clock A.M., Oct. 30th; breast medium size, nipples well developed.

At 9 A.M. the patient was comfortable. Flowing ordinary.

October	30th,	morning.	Pulse 84.	Tem.	99.7.
"	"	evening,	" 80.	"	98.4.
"	31st,	morning.	" 80.	"	98.3.
"	"	evening.	" 80.	"	99.

November 1st, morning. Pulse 80. Tem. 99.7. Slight amount of milk; no abdominal tenderness; flowing all right; passes water without any difficulty.

November 1st, evening. Pulse 84. Tem. 102.3. Milk comes freely; child nurses well; breasts full, very slight pain or tenderness about them.

November 2d, morning. Pulse 84. Tem. 99. Breasts not so full; milk free; no congestion about glands; no great rise in temperature. Oleum ricini ℥ ss.

November 2d, evening. Pulse 88. Tem. 100.5. Medicine operated once.

November	3d,	morning.	Pulse	92.	Tem. 100.
"	"	evening.	"	84.	" 100.7.
"	4th,	morning.	"	84.	" 98.7.
"	"	evening.	"	68.	" 100.
"	5th,	morning.	"	76.	" 99.
"	"	evening.	"	67.	" 99.5.
"	6th,	morning.	"	72.	" 98.7.
"	"	evening.	"	60.	" 98.7.
"	7th,	morning.	"	80.	" 99.5.
"	"	evening.	"	80.	" 99.7.
"	8th,	morning.	"	88.	" 99.
"	"	evening.	"	64.	" 98.7.

Patient sat up, was discharged four days after this, well. (Curve II.)

In the above case it is shown that with the establishment of the milk the rise in temperature was higher at this period than at any time during the ten days. The breasts were full of milk and the gland-tissue was stretched, but as soon as the child had relieved it, and the gland became accustomed to the work it had to do, the variations of the thermometer were like those in a common case of labor.

I will give another illustration of the same point.

Mary F., born in Portugal; 35; small woman, very dark complexion; breasts large, nipples well developed; multipara; labor very short; flowing ordinary; child, male, 7 lbs., born December 15th, at 1 A.M.

Dec. 15th, morning. Pulse 64. Tem. 100. Res. 18.
" " evening. " 64. " 98.4. " 14.

December 16th, morning. Pulse 76. Tem. 99.2. Res. 16. Uterus a little large; fl. extr. ergot ℥ ss. every three hours.

Dec. 16th, evening. Pulse 52. Tem. 98.7. Res. 16.
" 17th, morning. " 76. " 99.6. " 18.

December 17th, evening. Pulse 56. Tem. 99. Res. 17. Uterus much smaller; stop ergot; no milk yet.

December 18th, morning. Pulse 80. Tem. 99.5. Res. 16. No operation since confinement. Oleum ricini ℥ ss.

December 18th, evening. Pulse 88. Tem. 99.1. Res. 14. Oil operated four times.

Dec. 19th, morning. Pulse 85. Tem. 99.3. Res. 16.

December 19th, evening. Pulse 120. Tem. 103.8. Res. 24. Breasts full and hard; milk comes freely; child nurses well.

Dec.	20th,	morning.	Pulse	88.	Tem.	100.2.	Res. 20.
"	"	evening.	"	88.	"	99.8.	" 22.
"	21st,	morning.	"	76.	"	98.8.	" 16.
"	"	evening.	"	64.	"	99.1.	" 18.
"	22d,	morning.	"	72.	"	99.6.	" 20.
"	"	evening.	"	80.	"	99.	" 18.
"	23d,	morning.	"	80.	"	99.3.	" 18.
"	"	evening.	"	56.	"	98.4.	" 14.
"	24th,	morning.	"	88.	"	99.4.	" 18.
"	"	evening.	"	72.	"	99.	" 18.

Patient sat up, was discharged well. (Curve III.)

In this case there was no abdominal tenderness or after-pain. There was no reason to which to attribute the rise of temperature, but to the congestion of the breasts on the coming of the milk. To this set of cases I will add one more to illustrate the same point; it differs from the others, in that the patient had but very little milk and never enough fully to satisfy her child, although she was a very strong, healthy woman.

M. G., 23; American by birth; primipara; large, powerful woman; labor normal; child, female, eight pounds. Born May 12th, at 11.20 P.M. May 13th, morning. Pulse 64. Tem. 100.5. Flowing all right; patient comfortable; passed a good night.

May	13th,	evening.	Pulse	68.	Tem.	90.3.
"	14th,	morning.	"	76.	"	99.3.
"	"	evening.	"	80.	"	100.
"	15th,	morning.	"	76.	"	98.7.

May 15th, evening. Pulse 80. Tem. 101.5. Slight amount of milk; breasts quite full.

May 16th, morning. Pulse 104. Tem. 100.3. Child nurses well; not enough milk.

May 16th, evening. Pulse 108. Tem. 100.7.

May 17th, morning. Pulse 98. Tem. 102. Milk in considerable amount, but hardly enough for child.

May 17th, evening. Pulse 88. Tem. 101.

" 18th, morning. " 84. " 98.7. (Curve IV.)

Temperature was not taken after this; the child had to be fed all the time a little; sat up on the 22d. In these three

cases, I think that it is pretty clearly shown that the coming of the milk and the congestion of the mammary gland are accompanied with a rising temperature, and that the fuller the breasts are, the higher the temperature will rise.

I have only shown by these cases that at the coming of the milk secretion there is an increase of temperature; let us now see if congestion takes place after the milk secretion has been fully established, from any cause, death or sickness of the child, and if there will also be a rise in temperature in proportion to this congestion.

Some authors consider this fever as due entirely to the beginning of the milk secretion, and a peculiar physical change which the body undergoes at the beginning of this new process, and not due (Levret and Berndt) to a congestion of the breasts or an irritation produced by too great stretching of the galactophorous vessels, which is caused by the too rapidly secreted milk.

The following case is that of a woman who was prematurely delivered at six and a half months:

Elizabeth P. Multipara; American, 26; patient strained herself lifting a wash-tub; water came away two days after; child, female, 3½ pounds; born at 12 M., March 14th.

March 14th, evening. Pulse 100. Tem. 98.7.

March 15th, morning. Pulse 80. Tem. 98.7. Feels nicely; flowing all right.

March 15th, evening. Pulse 96. Tem. 98.7.

" 16th, morning. " 96. " 98.7.

March 16th, evening. Pulse 88. Tem. 98.7. Complained of bad headache.

March 17th, morning. Pulse 88. Tem. 98.5. Oleum ricini ʒ ss. Milk comes a little.

March 17th, evening. Pulse 84. Tem. 99.5. Milk comes freely; nurses other children; enough to nurse two children.

March 18th, morning. Pulse 92. Tem. 99.

" " evening. " 88. " 99.5.

March 19th, morning. Pulse 92. Tem. 99.5. Concludes to dry up her milk and stop nursing.

March 19th, evening. Pulse 88. Tem. 101. Breasts full.

March 20th, morning. Pulse 88. Tem. 100.4.

March 20th, evening. Pulse 80. Tem. 101. Breasts slightly

painful; magnesiæ sulph. ℥ ss.; breasts rubbed with camphorated oil. To take as little liquid as possible.

March 21st, morning. Pulse 84. Tem. 98.5. Breasts all right; no pain; milk slight in amount; running out.

March 21st, evening. Pulse 84. Tem. 99.5.
" 22d, morning. " 88. " not taken.
" " evening. " 84. 98.5. (Curve V.)

This case shows very plainly that although there was a slight rise with the beginning of the milk secretion, when, after a few days, the woman concluded to stop nursing, congestion which the over-distended breasts caused, produced a much higher temperature than took place at the beginning of the secretion of the milk. Scanzoni says, that he has noticed the same fact, that the woman who suddenly weans her child, or whose child has died, is very apt to have a certain amount of congestion and pain about her breasts, with a corresponding rise in temperature. He considers the rise to be due to the stretching of the milk-vessels by the dammed-up milk which is not drawn off, and does not run out of its own accord fast enough. Now we have seen that the beginning of the milk secretion is attended with an increase in temperature, and that the irritation of the over-loaded breasts is also accompanied by a rise corresponding to the severity of the irritation. Let us see if the opinions of Schramm are borne out by further investigation, namely, that if this congestion and irritation of the breasts is due to an overloading of the milk-vessels, the alleviation of this condition will be followed by a corresponding fall of temperature.

Schramm, as I have before stated, took the temperature in a certain number of cases before and after nursing, and found there was a certain slight fall.

In the clinical reports which I have, this was not done; but I have collected two or three cases which will show this point.

These cases are those of women whose children, on account of sickness, refused the breast, which on that account became too full and congested, causing considerable pain (the milk was removed by rubbing with a salve and a cathartic was given, the amount of milk was very much lessened, and the congestion reduced at once); or they are cases in which the congestion of the glands was so great that serious trouble was

feared, and the breasts were strapped so that a firm wall was formed round the gland, and the stretched tissue relieved. After this the principal cause of irritation was taken away.

Margaret McM. American; primipara; 21 years old. Breasts normal in size, nipples well developed; labor normal; child, girl, 9½ lbs.; born the 16th of Nov.

The patient passed through the first seven days of the lying-in state without any serious trouble, although there were at times considerable abdominal tenderness and offensive lochia; but on the sixth and seventh days the temperature was about normal. The report begins on the eighth day.

Nov. 23d, morning. Pulse 84. Tem. 98.8.

Nov. 23d, evening. Pulse 84. Tem. 90.4. Child not very well; breasts all right; no abdominal tenderness; lochia not offensive.

Nov. 24th, morning. Pulse 100. Tem. 98.6. Child very sick, will not nurse; breasts full; magnesia sulph. ℥ ss. given.

Nov. 24th, evening. Pulse 108. Tem. 103.5. Breasts very full, hard and painful; medicine does not operate; to be repeated; breasts to be rubbed with camphorated oil.

Nov. 25th, morning. Pulse 92. Tem. 100. Medicine operated once; breasts all right; no pain or fulness.

Nov. 25th, evening. Pulse 92. Tem. 99. Patient sat up the next day; no more trouble with the breasts; child nurses a little.

In this case the emptying of the breasts was followed by an immediate fall in temperature. The rubbing acted as a pump and withdrew all the milk from the gland. The fall was from 103.5° F., 39.7° C., to 100° F., 37.7° C. = 2° C., or 3½° F.

I add this case of a patient who had a very rapid delivery and a very severe attack of after-pains on the second and third days:

Margaret L. American; 18 years old; multipara; child, male, 9 lbs.

On the eleventh day I begin the report.

May 8th, morning. Pulse 80. Tem. 98.5. Patient had had some trouble with breasts and nipples before, which had been relieved by cathartics.

May 8th, evening. Pulse 72. Tem. 98.5.

May 9th, morning. Pulse 68. Tem. 100. Right nipple sore, but better, that breast not used. Patient sat up.

May 10th, morning. Pulse 76. Tem. 99. Doing nicely. Does not nurse with right breast; breast quite full.

May 10th, evening. Pulse 96. Tem. 103. Breast very painful and hard; to be rubbed with camphorated oil; magnesia sulph. ℥ ss.

May 11th, morning. Pulse 80. Tem. 98.5. Feels nicely; breasts soft, not painful.

May 11th, evening. Pulse 80. Tem. 98.9. In this case, although the child was not taken away, yet on account of the nipple of one breast it was not put to it. The breast on that account was full and hard; but as soon as relieved the temperature fell.

Of those cases in which congestion of the breasts was so great that they were strapped in order to prevent any further trouble, and in that way the tension relieved, I will give two.

Bridget H. Irish; 23; multipara. Labor rather long in first stage; very short in second. Child, girl, 6½ lbs.; born April 14th, at 7.45 A.M. 11 A.M., Pulse 88. Tem. 99.5. Slight after-pains.

April 14th, evening.	Pulse	60.	Tem.	100.
" 15th, morning.	"	56.	"	98.5.
" " evening.	"	60.	"	98.5.
" 16th, morning.	"	60.	"	98.5.

April 16th, evening. Pulse 64. Tem. 99. Slight amount of milk.

April 17th, morning. Pulse 72. Tem. 101. Afterwards 103.5. Breasts very full and hard; patient chilly; breasts strapped.

April 17th, evening. Pulse 100. Tem. 102. Breasts much better.

The rest of the case is not of any particular value to report. This next case also shows this point very well; the fall of temperature is greater.

Charlotte J. Swede; 31; primipara (?); labor normal; breasts small; nipples well developed; child, boy, 8½ lbs.; born 11.45 P.M., Sept. 10th.

Sept. 11th, morning.	Pulse	64.	Tem.	99.5.
" " evening.	"	60.	"	98.5.

Sept. 12th, morning. Pulse 64. Tem. 98.75.

Sept. 12th, evening. Pulse 72. Tem. 99.5. Slight amount of milk.

Sept. 13th, morning. Pulse 96. Tem. 101. Breasts very full; rubbed with camphorated oil.

Sept. 13th, evening. Pulse 104. Tem. 102. Breasts fuller, and quite painful.

Sept. 14th, morning. Pulse 100. Tem. 102. Breasts still full, and more painful.

Sept. 14th, evening. Pulse 96. Tem. 102.5. Breasts full and hard; so much pain that they were strapped; Rochelle powder given.

Sept. 15th, morning. Pulse 80. Tem. 98.5. No pain in breasts; not at all hard; milk free.

Sept. 15th, evening. Pulse 76. Tem. 101. Breasts full again, but not so much as before.

Sept. 16th, morning. Pulse 80. Tem. 100.3. Breasts rather better

Sept. 16th, evening. Pulse 68. Tem. 100.5.
" 17th, morning. " 76. " 101.

Sept. 17th, evening. Pulse 80. Tem. 98.5. Breasts all right.

Sept. 18th, morning. Pulse 64. Tem. 98.5.
" " evening. " 72. " 99.7.
" 19th, morning. " 76. " 99.3.

Sept. 19th, evening. Pulse 68. Tem. 99.5. Patient sat up. Discharged on the 24th, well.

These four cases will, I think, confirm the opinion of Schramm, although they are exceptional; nevertheless, they show the principle that the irritation and stretching which the breasts experience when very much congested, will cause a certain amount of febrile movement, which will be immediately checked when this state of things is relieved.

Sore nipples are mentioned in all books on obstetrics as cause for high fever, and sometimes a good deal of mental anxiety and excitement are connected with them, for the pain is often very severe.

In relation to this subject, I should like to say that I find from examination of the cases of labor set down in the records of the Lying-In Hospital, that sore nipples (I mean by this ex-

pression all the numerous diseases to which the nipples are subject during lactation) are in themselves alone not connected with any inflammation of the breasts, and are not accompanied with any marked fever. The temperature may be as high as 100–101, but no very marked increase, such as is often connected with inflammation of the breasts.

The mental excitement is often accompanied with a very marked fever, for the pain is often so severe as to make the woman cry out, and even sometimes to be delirious; this is mentioned in the text-books, but is very rare.

In these cases the temperature is very high, but it must not be considered as due to the lesion about the nipples directly, but to the peculiar mental condition which is brought about by acute pain. I will add that these occur only in hysterical women. The slight fever, which I have mentioned as connected with the nipples alone, is a true wound fever. The more severe fever, which is due to the breasts being inflamed, cannot be thought of as a pure wound fever, but as one that has other causes than that of merely diseased nipples.

The third form, namely, the fever due to mental excitement, is a peculiar febrile movement, which is mentioned by many authors, but by none in a very satisfactory manner.

Some authorities, as I have said, speak of a rise in temperature connected with violent mental emotion. Under this head hysteria can, I presume, be classed; but none give any cases to illustrate the fact, and pass it over in a superficial manner. I wish to report two or three cases in regard to this very point, since a knowledge of this fact might be useful, and a help to diagnosis.

I will state, before giving the cases, what I wish shown, namely, that a very high pulse-temperature may be brought about by mental excitement, or by hysteria, which is not connected with any other trouble, and which will often pass off with great rapidity. The fever, if it occurred from any other cause, would probably be fatal, but under these circumstances it is of no consequence; the diagnosis is therefore important. The first case is as follows:

Mary L. 20; Irish; primipara. Always strong and well. Child, girl; 7 lbs.; born 3.30 P.M., Nov. 30th. Labor normal; breasts well developed, nipples prominent.

Nov. 30th, evening. Pulse 88. Tem. 100.8.
Dec. 1st, morning. " 68. " 98.9.
" " evening. " 72. " 100.4.

Dec. 2d, morning. Pulse 124. Tem. 103.9. Patient complained of great abdominal tenderness, pain, and is chilly; very nervous, frightened, thinks she is going to die. Case diagnosticated as hysteria. The abdominal tenderness was in reality very slight, less than is often present after labor.

Dec. 2d, evening. Pulse 120. Tem. 105. About the same, complaining of every kind of ache and pain.

Dec. 3d, morning. Pulse 116. Tem. 103.8. Oleum ricini, ℥ ss.

Dec. 3d, evening. Pulse 116. Tem. 105. About the same; not very much milk; child nurses well.

Dec. 4th, morning. Pulse 100. Tem. 103.2.

Dec. 4th, evening. Pulse 100. Tem. 102.5. Much better; feels nicely.

Dec. 5th, morning. Pulse 88. Tem. 100.9.

Dec. 5th, evening. Pulse 88. Tem. 100.2. Nipples slightly painful in nursing; used nipple shield.

Dec. 6th, morning. Pulse 80. Tem. 100.2.
" " evening. " 87. " 101.6.
" 7th, morning. " 80. " 100.4.
" " evening. " 84. " 101.6.
" 8th, morning. " 68. " 101.1.
" " evening. " 88. " 101.8.

Dec. 9th, morning. Pulse 120. Tem. 105.4. Patient very nervous and hysterical; complains of great tenderness about abdomen. On examination, this was found wanting.

Dec. 9th, evening. Pulse 120. Tem. 105.4. About the same.

Dec. 10th, morning. Pulse 92. Tem. 100.8. All right.

Dec. 10th, evening. Pulse 92. Tem. 102.8.

Dec. 11th, morning. Pulse 80. Tem. 98.2. All right, sat up. Discharged on the 16th, well. The second case shows this much better.

Kate N. 22; Irish; primipara; labor normal; child, girl, 7½ lbs.; born at 5.45 P.M., Sept. 25th. Flowing considerable.

Sept. 25th, evening. Pulse 76. Tem. 101.
" 26th, morning. " 71. " 99.

Sept. 26th, evening. Pulse 72. Tem. 99.5.
" 27th, morning. " 72. " 100.
" " evening. " 96. " 102.

Sept. 28th, morning. Pulse 108. Tem. 102.5. Oleum ricini ℥ ss. given.

Sept. 28th, evening. Pulse 102. Tem. 105.3. Oil operated twice; patient very nervous and hysterical; nipples slightly painful.

Sept. 29th, morning. Pulse 92. Tem. 100. All right. Afterwards had an hysterical attack. Pulse 120. Tem. 104.5. Complained of pain and tenderness of abdomen; hysterical.

Sept. 29th, evening. Pulse 128. Tem. 106.8. Patient very nervous; greatly excited; no pain or tenderness; potassii bromidum, gr. xxx.; very little milk.

Sept. 30th, morning. Pulse 112. Tem. 105.8. Pulv. Doveri gr. x. last night to quiet the patient.

Sept. 30th, evening. Pulse 112. Tem. 105.8. Patient still very nervous; potassii bromidum to be repeated.

Oct. 1st, morning. Pulse 96. Tem. 101.5. Much better. Potassii bromidum, gr. x. every three hours.

Oct. 1st, evening. Pulse 108. Tem. 103.
" 2d, morning. " 92. " 102.
" " evening. " 100. " 102.

Oct. 3d, morning. Pulse 132. Tem. 105.8. Patient very hysterical again; got out of bed twice, out of her mind.

Oct. 3d, evening. Pulse 128. Tem. 105.5.

Oct. 4th, morning. Pulse 88. Tem. 98.8. All right; feels nicely.

Oct. 4th, evening. Pulse 104. Tem. 101.8.

Oct. 5th, morning. Pulse 108. Tem. 101.8. Stop potassii bromidum.

Oct. 6th, morning. Pulse 88. Tem. 99. (Curve VI.) Sat up; was discharged on the 10th.

In these cases there was nothing to which to attribute this high pulse and temperature, but the mental condition.

The breasts, etc., were all right.

In another case the temperature rose as high as 106° F., due to the same trouble, hysteria. I will now conclude the report, by giving two pure cases of milk fever, for in them the breasts were the only organs affected. The uterus was all right, the

nipples sound, no nervous symptoms, no wounds of the genitals as far as could be ascertained.

Eliza J. W. 28; American; multipara; 5th child; labor normal, quite short; breasts about normal size; nipples well developed; child, male, 9 lbs.; born 6.50 P.M., Oct. 14th.

Oct. 15th,	morning.	Pulse	76.	Tem.	98.5.
" "	evening.	"	80.	"	99.
" 16th,	morning.	"	76.	"	99.8.
" "	evening.	"	84.	"	99.5.

Oct. 17th, morning. Pulse 120. Tem. 105. Breasts very hard; not much pain; a cloth soaked in camphorated oil applied; magnesia sulph. ℥ ss.

Oct. 17th, evening. Pulse 120. Tem. 104.5. Medicine did not operate. Rochelle powder with magnesia sulph. ℥ j.; milk comes freely; child nurses well; breasts still very hard; not much pain.

Oct. 18th. Pulse 92. Tem. 100.5. Rochelle powder operated three times.

Oct. 18th, evening. Pulse 100. Tem. 101.8. Although the child nurses well, still the milk is secreted too fast, and the breasts quite hard, but not so much so; milk runs out.

Oct. 19th, morning. Pulse 88. Tem. 100.3.

Oct. 19th, evening. Pulse 72. Tem. 100.8. Breasts soft; milk free.

Oct. 20th,	morning.	Pulse	76.	Tem.	100.
" "	evening.	"	80.	"	99.
" 21st,	morning.	"	76.	"	100.
" "	evening.	"	88.	"	98.5.
" 22d,	morning.	"	84.	"	99.3.
" "	evening.	"	80.	"	99.8.
" 23d,	morning.	"	82.	"	99.8.
" "	evening	"	84.	"	100.5.

Sat up next day; discharged the 28th, well. (Curve VII.)

In this case, after the milk had been fully established, the temperature fell and there was no further trouble.

Margaret H. 18; American; primipara; labor normal; breasts large; nipples well developed; child, boy, nine pounds; born 10.15 A.M., Oct. 15th.

Oct. 15th,	morning.	Pulse	64.	Tem.	100.
" "	evening.	"	68.	"	100.8

Oct. 16th, morning. Pulse 60. Tem. 99.5.
" " evening. " 60. " 100.
" 17th, morning. " 76. " 99.8.

Oct. 17th, evening. Pulse 92. Tem. 102.8. Milk came in slight amount.

Oct. 18th, morning. Pulse 104. Tem. 103.5. Oleum ricini ℥ ss.; milk more abundant; breasts full.

Oct. 18th, evening. Pulse 112. Tem. 105. Oil did not operate; Rochelle powder operates twice; breasts very full and hard; camphorated oil.

Oct. 19th, morning. Pulse 104. Tem. 101.8. Breasts much better.

Oct. 19th, evening. Pulse 96. Tem. 103.8. Breasts fuller.

Oct. 20th, morning. Pulse 88. Tem. 100.8. Breasts nicely

Oct. 20th, evening. Pulse 80. Tem. 101.5.
" 21st, morning. " 80. " 99.8.
" " evening. " 76. " 100.8.
" 22d, morning. " 64. " 99.8.
" " evening. " 60. " 100.

Oct. 23d, morning. Pulse 72. Tem. 99.8. Child went away.

Oct. 23d, evening. Pulse 80. Tem. 100.3. Breasts full; Rochelle powder, with magnesia sulph. ℥ j.

Oct. 24th, morning. Pulse 84. Tem. 101. Cathartic operated three times; breasts still full.

Oct. 24th, evening. Pulse 72. Tem. 101.5. Breasts quite painful; sat up. (Curve VIII.)

Discharged well on the 29th.

These cases are remarkably good illustrations of the pure milk fever, the mastitis parenchymatosa non suppurativa of Schroeder. It is rare to find these cases, for, in the pure form, they occur only two to four times in a hundred cases.

In regard to the febriculæ theory, of which Hecker speaks in 1861, I am able to say nothing, for this point is not shown in the cases I have obtained.

As to the fever caused by small ulcers of the genital canal, I am unable to say anything, except that Winckel and D'Espine consider them the causes of high fever, and that Schroeder thinks they have very little to do with it.

The theory that the milk fever was due to a metastasis, has been shown to be false by Gascogne, for milk injected into the veins does not produce fever.

I will not take up the opinions of the authorities I have quoted and discuss them, for I hope I have been able to show that the milk fever is a real and not an imaginary affection, and that it is due to the changes which go on in the breasts.

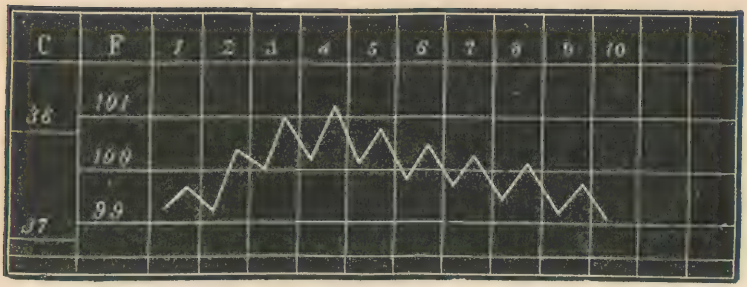
The theory of the wound fever is well proved, and it will not be necessary to discuss it further, for it is well known that a fever may arise from the injury done to the genitals during labor, but that this is the sole cause for fever during the lying-in state, I think I have shown not to be true.

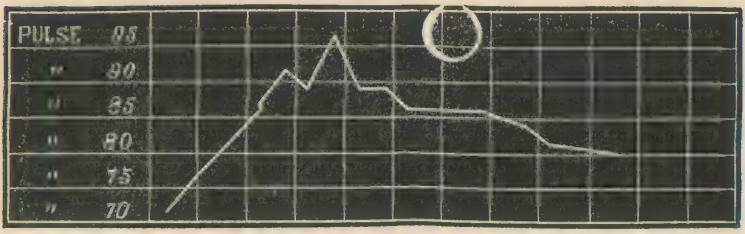
In finishing this paper, I wish to state what conclusion I have arrived at. That there is such an affection as milk fever, I fully believe, and I think it is due to two causes which are as follows: It has been shown that at the coming of the milk there is always a slight rise in temperature, which may become considerable, and which I think is due to the sudden development of this new function, for there is a congestion of the glands, which are very richly supplied with nerves and vessels, causing a certain amount of nervous action which will give rise to an increase of temperature; this increases as the congestion increases, but if the child draws the milk immediately as soon as it is formed, the pulse and temperature fall. If this state of things is not relieved, however, a new force comes into action, the milk accumulates in the gland vessels, stretching the skin until it becomes tense, and the fever increases instead of diminishing, not on account of the congestion of the breasts, but owing to the stretching and irritation which this produces when the glands are fullest and the breasts hardest; then the temperature is at its maximum.

I would wish to say, that I do not consider every rise in temperature during the lying-in state due to this, but I consider that the milk fever in a pure form is rare, for it is hardly fair to consider that the establishment of a natural function should give rise to any febrile disturbance. I may say, however, that the fever which occurs often during the first week of childbed, is not a simple one at all, but is due to a combination of circumstances, namely, wounds of the genitals, congestion of the breasts, indiscretions in diet, mental disturbance, etc.

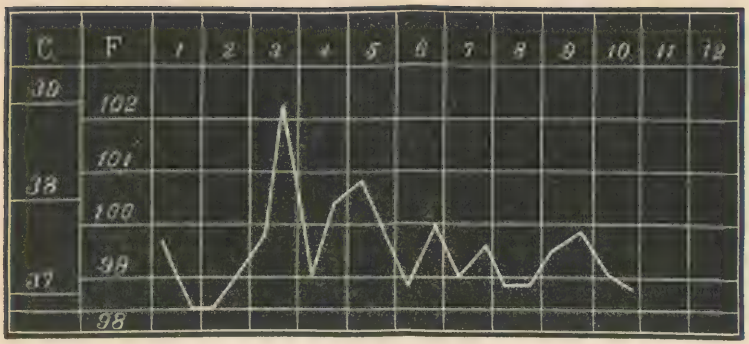
I will conclude by saying that the term *milk fever* is not only useful, but necessary.

Curve I.

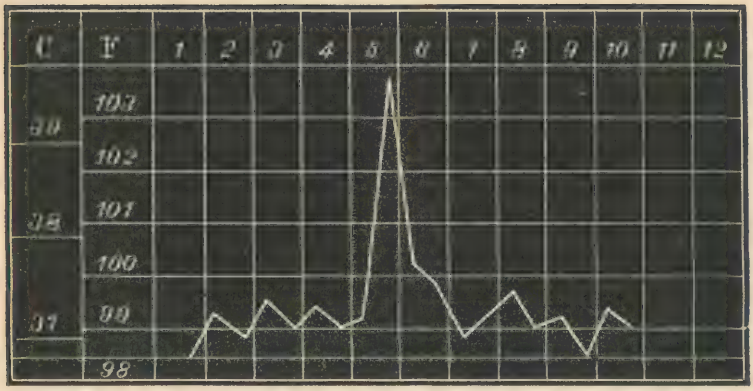




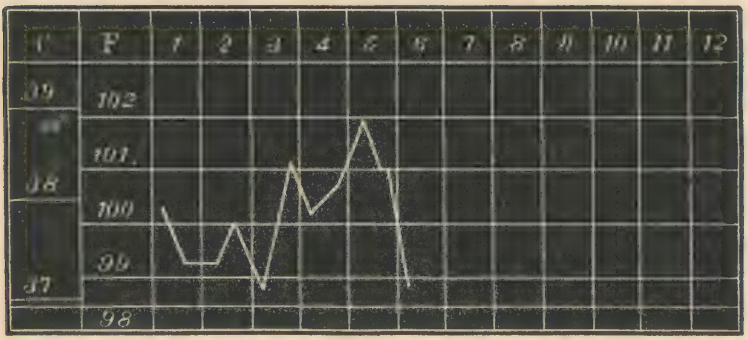
Curve II.



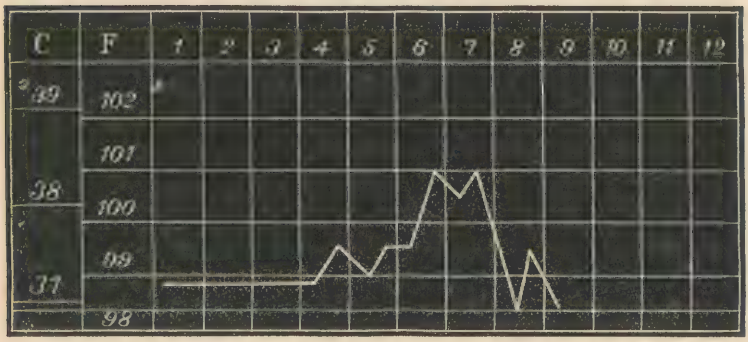
Curve III.



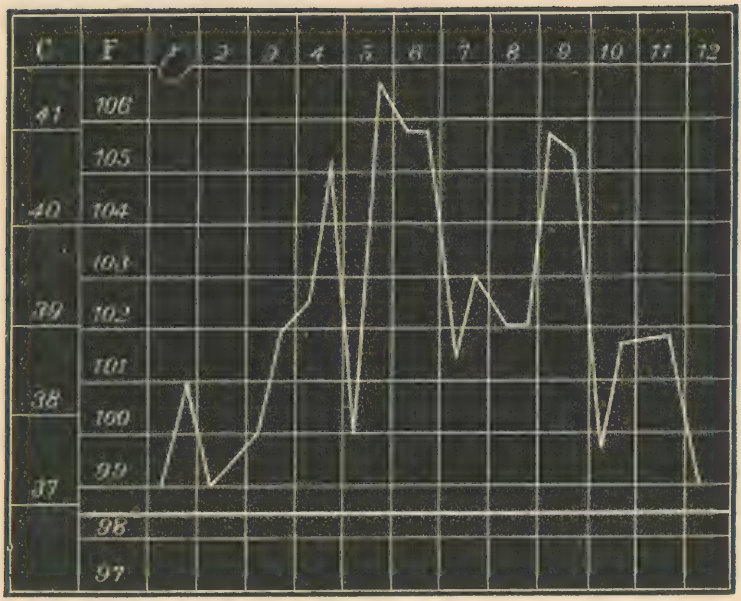
Curve IV.

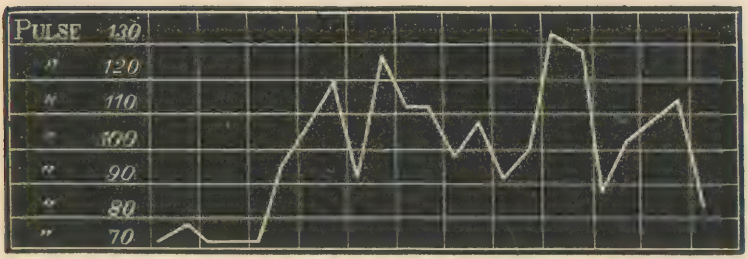


Curve V.

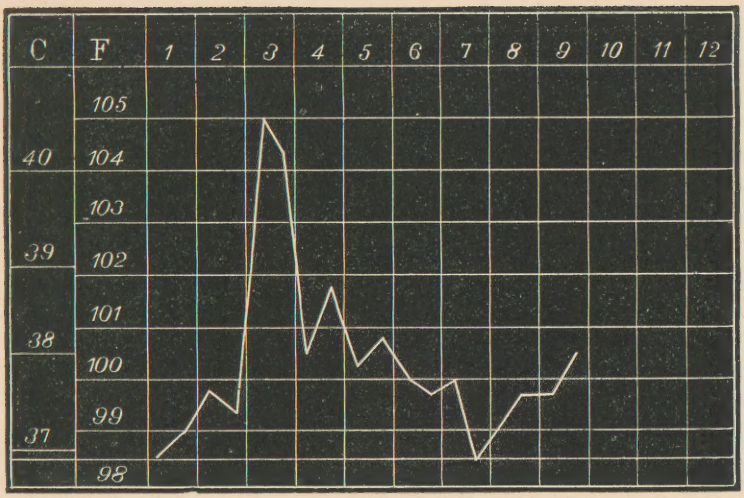


CURVE VI.


C
F
1
2
3
4
5
6
7
8
9
10
11
12
41
106
105
40
104
103
39
102
101
38
100
99
37
98
97


PULSE
130
120
110
100
90
80
70

CURVE VII.



CURVE VIII.

